PHOTOGRAPHIC INTERPRETATION REPORT

SOUTHEAST ASIA ACTIVITY REPORT

SELECTED TRANSPORTATION AND INFILTRATION COMPENDIUM

CHANGES IN NORTH VIETNAM ELECTRIC POWER FACILITIES

NPIC/R-7/68
JANUARY 1968

SUMMARY NO 70

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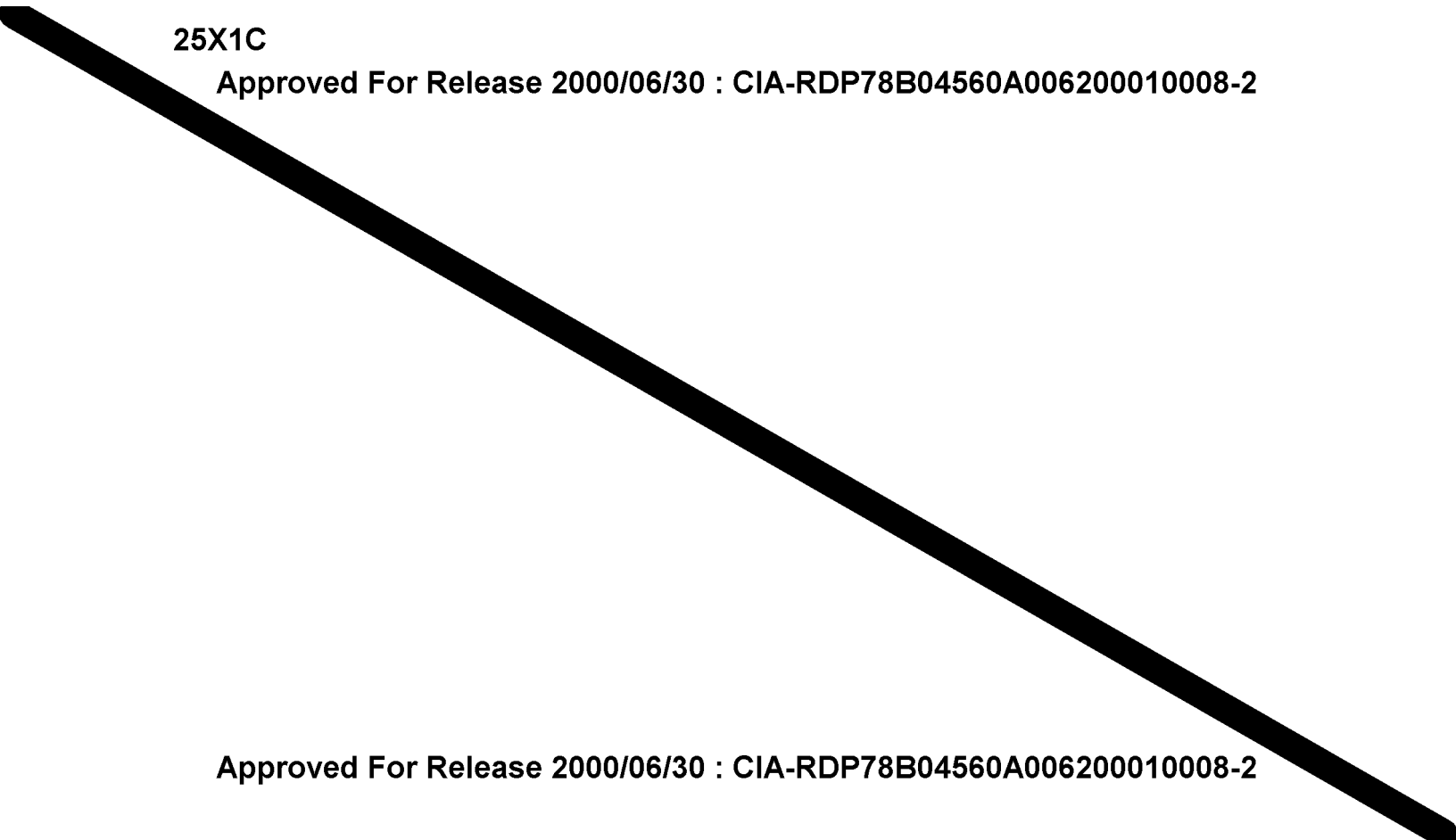

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PREFACE

This report is a summary of selected information on transportation and infiltration activity in southeast Asia as reported by NPIC during the period indicated on the cover. Those lines of communication and associated facilities which support communist insurgency in Laos and South Vietnam are emphasized.

Items are numbered and arranged according to location from north to south. Annotated maps of varying scales have been included to assist the reader in locating the items. Each large-scale map depicts all motorable roads photographically confirmed by NPIC unless otherwise indicated.

Missions, mission dates, frames, and NPIC cable and briefing board references are listed after each item, as appropriate.

Changes in North Vietnam Electric Power Facilities

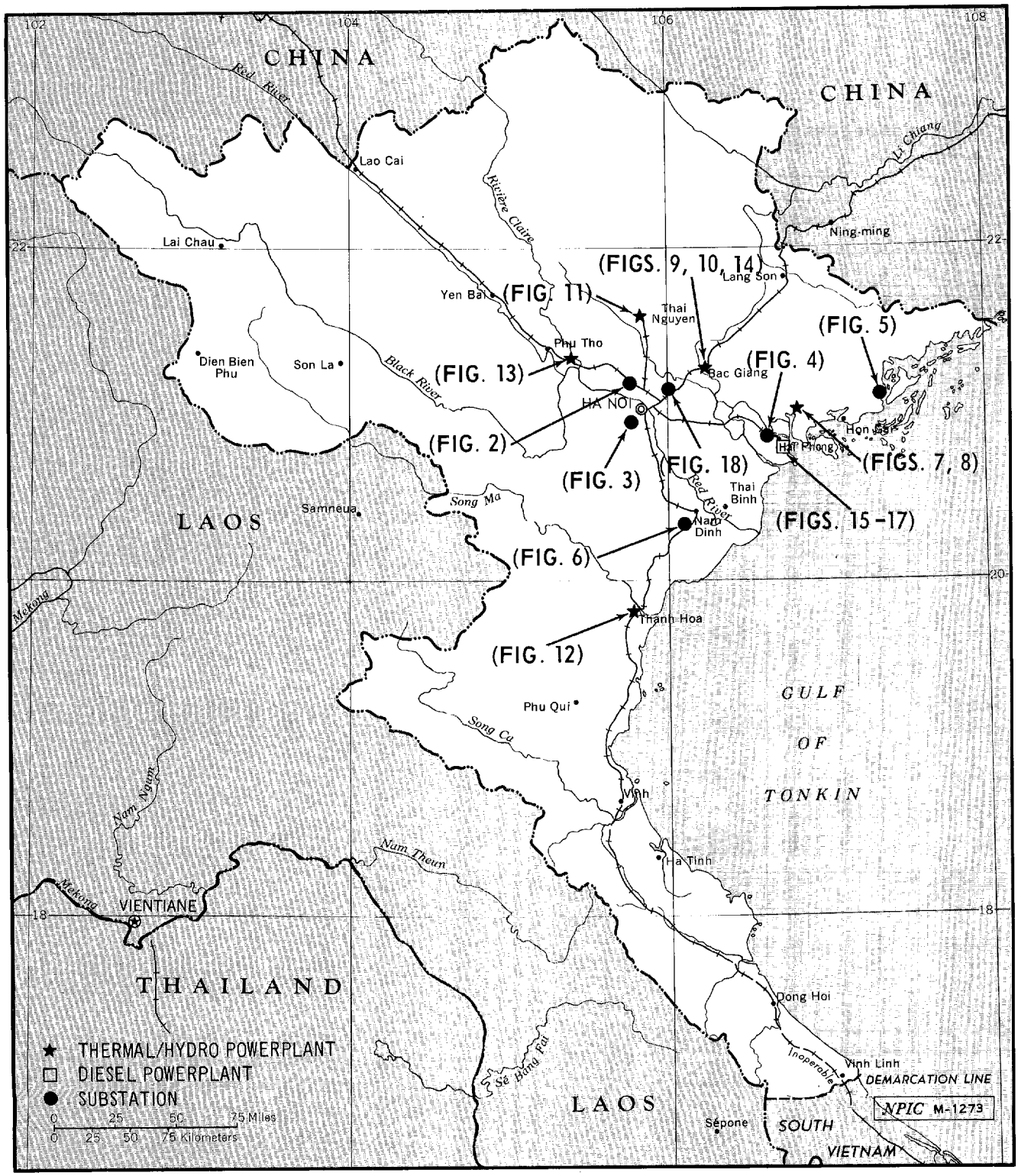
Significant changes have occurred in the electric power producing and transforming facilities of North Vietnam as a direct result of the expansion and increased effectiveness of airstrikes. Major 110 kv substations are now inoperative, thermal powerplants are being modified, and diesel electric powerplants have been recently constructed. The result is a virtual abandonment of the sophisticated electric power grid (EPG) as originally conceived and a concerted effort to maintain power production for local consumption.

Four of the six major 110 kv substations are inoperative due to the destruction and/or removal of their transformers: Ha Noi Transformer 25X1A Substation Dong Anh, [redacted] (Figure 2); Ha Dong Transformer 25X1A Substation, [redacted] (Figure 3); Hai Phong Transformer Substation, 25X1A [redacted] (Figure 4); and Cam Pha Transformer Substation Mong 25X1A Duong, [redacted] (Figure 5). In addition, the control building has been partially dismantled at Nam Dinh Transformer Substation, [redacted] 25X1A 25X1A [redacted] Figure 6). All five installations appear abandoned (compare pages D10 thru D21, NPIC/R-146/67 Southeast Asia Activity Report, Electric Power Facilities, North Vietnam, Oct 67, SECRET NO FOREIGN DISSEM EXCEPT 25X1C [redacted]

The abandonment of the substations is probably a direct result of effective airstrikes against the powerplants and the resulting reduction in high voltage transmission capacity. The transformers removed from the substations could either be stored for the future reconstruction of the EPG or relocated at existing powerplants.

Even those powerplants still in operation are undergoing major modifications to reduce the vulnerability of critical components and to maintain serviceability in spite of airstrikes. Transformers have been relocated in deep, reinforced holes outside the installation perimeter at the following: Uong Bi Thermal Electric Powerplant, [redacted] 25X1A (Figures 7 & 8); Bac Giang Thermal Electric Powerplant, [redacted] 25X1A (Figures 9 & 10); Thai Nguyen Thermal Electric Powerplant, [redacted] 25X1A (Figure 11); Thanh Hoa Thermal Electric Powerplant, [redacted] 25X1A (Figure 12); and Ban Thach Hydroelectric Powerplant, [redacted] 25X1A

The powerplant waste disposal system is being modified to accommodate both fly ash (sludge) and gaseous materials in a single underground conduit, thereby eliminating the requirement for a main stack. This innovation was confirmed at Uong Bi where the flue extensions by-pass the destroyed stack and connect with a partially underground conduit terminating at the fly ash disposal area (Figure 8).


CHINA
CHINA
Red River
Lao Cai
Rivière Claire
Li Chiang
Ning-ming
Lai Chau
Yen Bai
(FIG. 11)
(FIGS. 9, 10, 14)
Lang Son
Thai Nguyen
(FIG. 5)
Phu Tho
Dien Bien Phu
Son La
Black River
(FIG. 13)
Bac Giang
(FIG. 4)
HA NOI
Hon Gai
Hai Phong
(FIG. 2)
(FIG. 3)
(FIG. 18)
(FIGS. 7, 8)
Red River
Thai Binh
Song Ma
Samneua
LAOS
Nam Dinh
(FIGS. 15-17)
(FIG. 6)
Mekong
Thanh Hoa
(FIG. 12)
Phu Qui
GULF
OF
TONKIN
Song Ca
Nam Ngum
Nam Theun
Mekong
VIENTIANE
Vinh
Ha Tinh
THAILAND
Dong Hoi
Inoperable
Vinh Linh
DEMARCATION LINE
Se Bang Fai
LAOS
Sepone
SOUTH
VIETNAM
NPIC M-1273
THERMAL/HYDRO POWERPLANT
DIESEL POWERPLANT
SUBSTATION
0 25 50 75 Miles
0 25 50 75 Kilometers
102
104
106
108
22
20
18

25X1A A similar disposal system was probably constructed at the Viet Tri Thermal Electric Powerplant, [redacted]. Although the stack remains undamaged, a newly constructed conduit extends from the main flue near its entrance into the stack and follows the alignment of the previously existing fly ash disposal line (Figure 13).

Construction of an underground conduit was begun at Thanh Hoa after airstrikes against that installation. This conduit also appears to extend from the flue system and by-pass the stack (Figure 12). Unlike those at Uong Bi and Viet Tri, it does not coincide with the previously existing fly ash disposal line. It may therefore have been intended to function only as a horizontal flue for the discharge of gaseous materials and not as a combined waste disposal line.

Gaseous wastes and/or steam have been observed rising from two above-ground pipes at Bac Giang (Figure 14). These pipes, extending from the area of the stack flues, may also be serving as horizontal flues.

In an apparent attempt to offset the power lost from the inoperative thermal powerplants, the North Vietnamese have been constructing diesel-electric powerplants since early 1967 (see Section C, NPIC/R-146/67). Although these facilities are difficult to detect due to their compact nature, various combinations of identifiable features are present at each (see Figure 18). Figures 15, 16 and 17 demonstrate the relatively short time span required for construction. The photo below is included as an example of the diesel engines currently in use in North Vietnam.

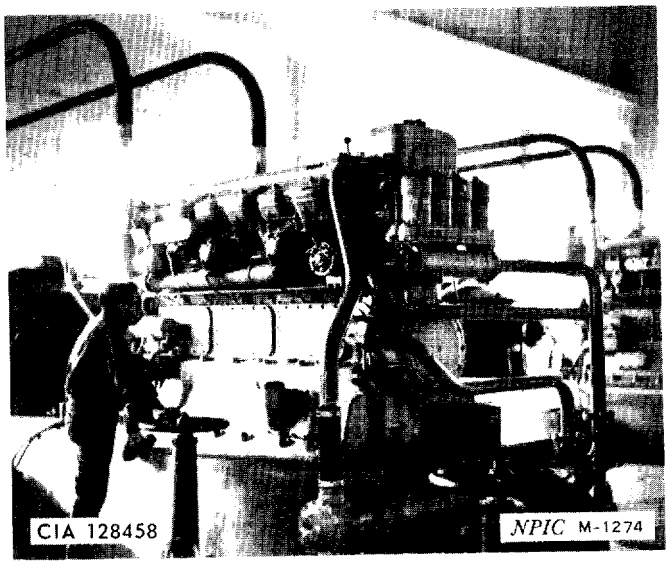
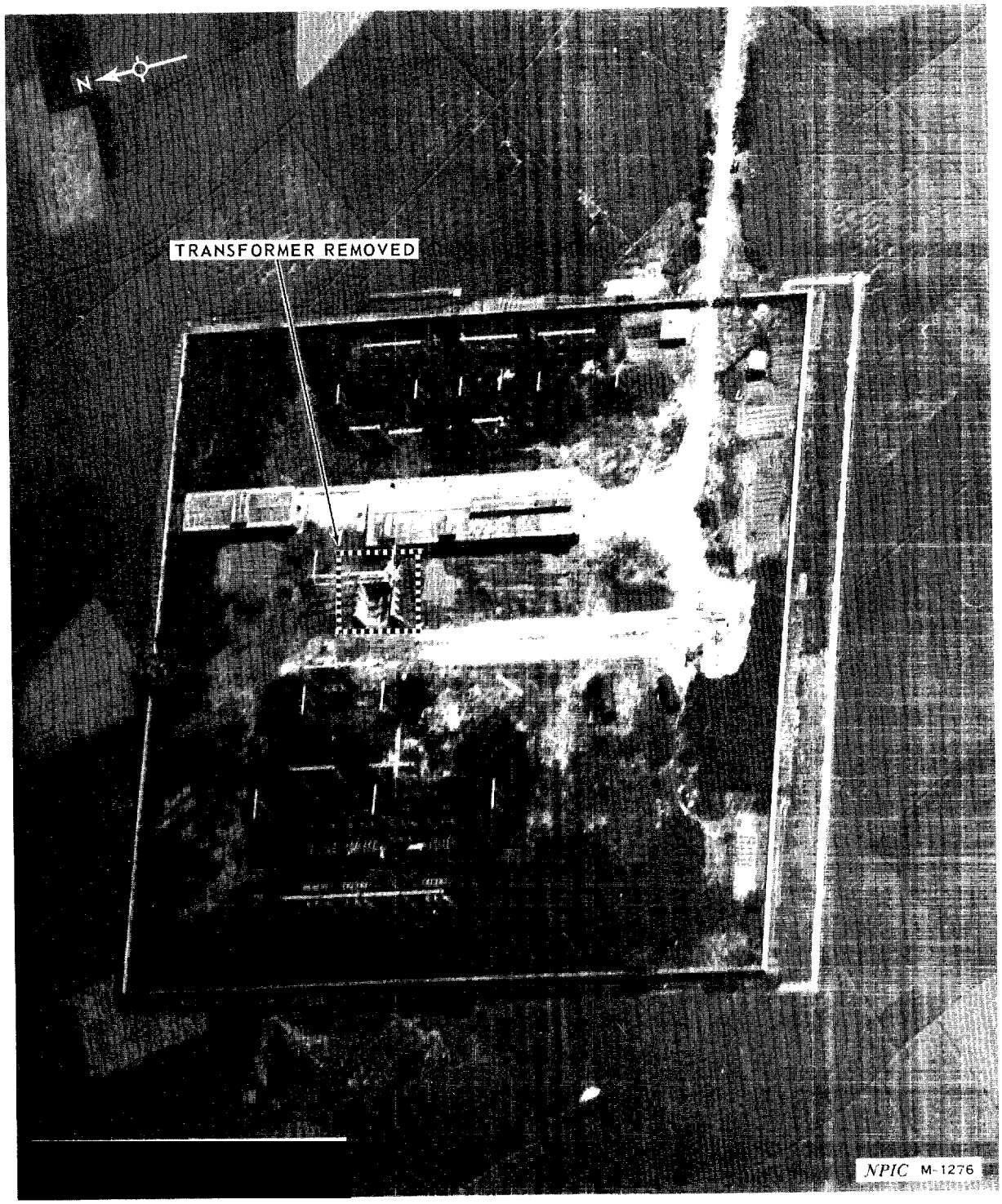


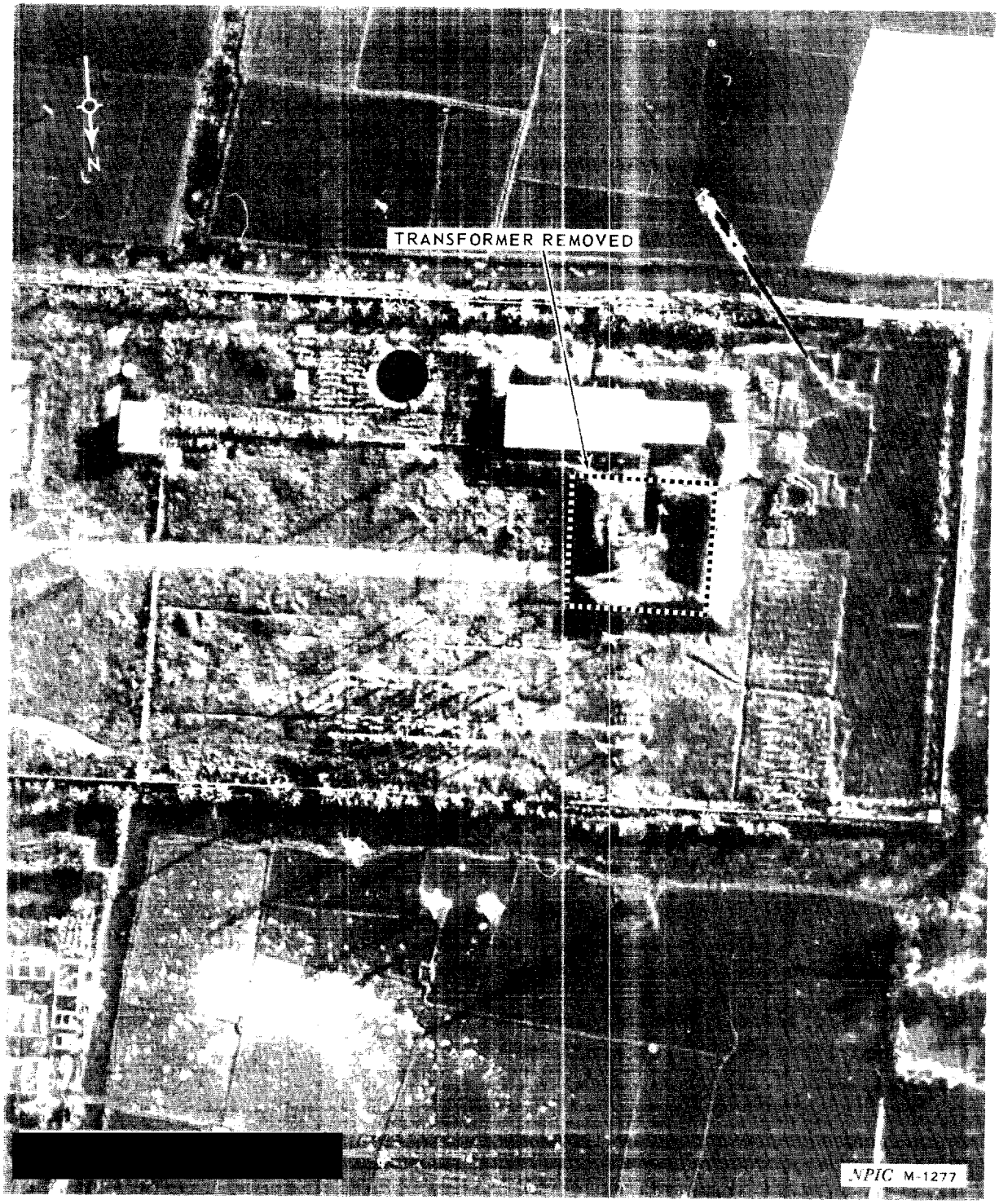
FIGURE 1. TYPICAL DIESEL ENGINE, NORTH VIETNAM

FIGURE 2. HA NOI TRANSFORMER SUBSTATION, DONG ANH, NORTH VIETNAM



25X1D

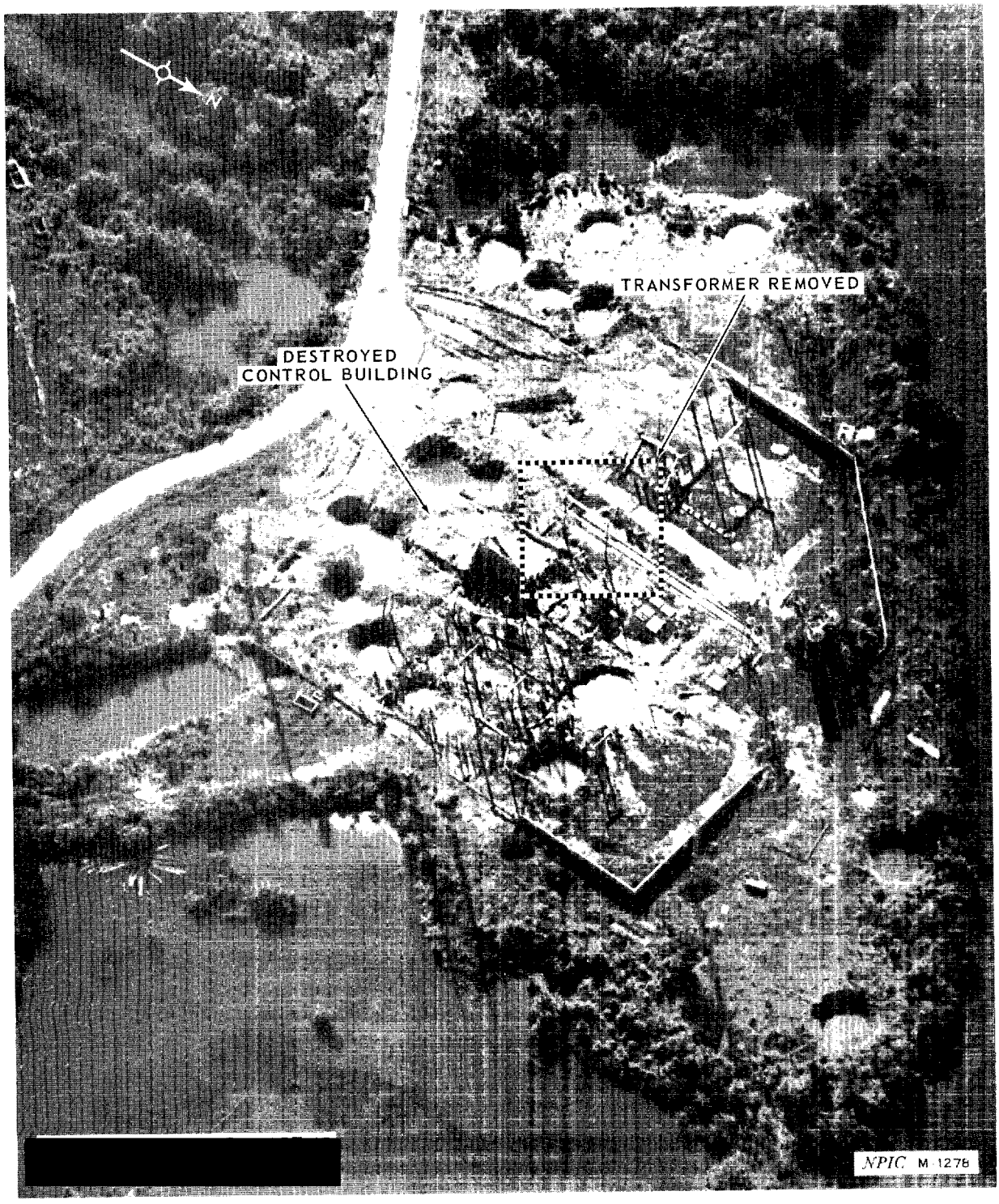
FIGURE 3. HA DONG TRANSFORMER SUBSTATION, NORTH VIETNAM



[redacted]

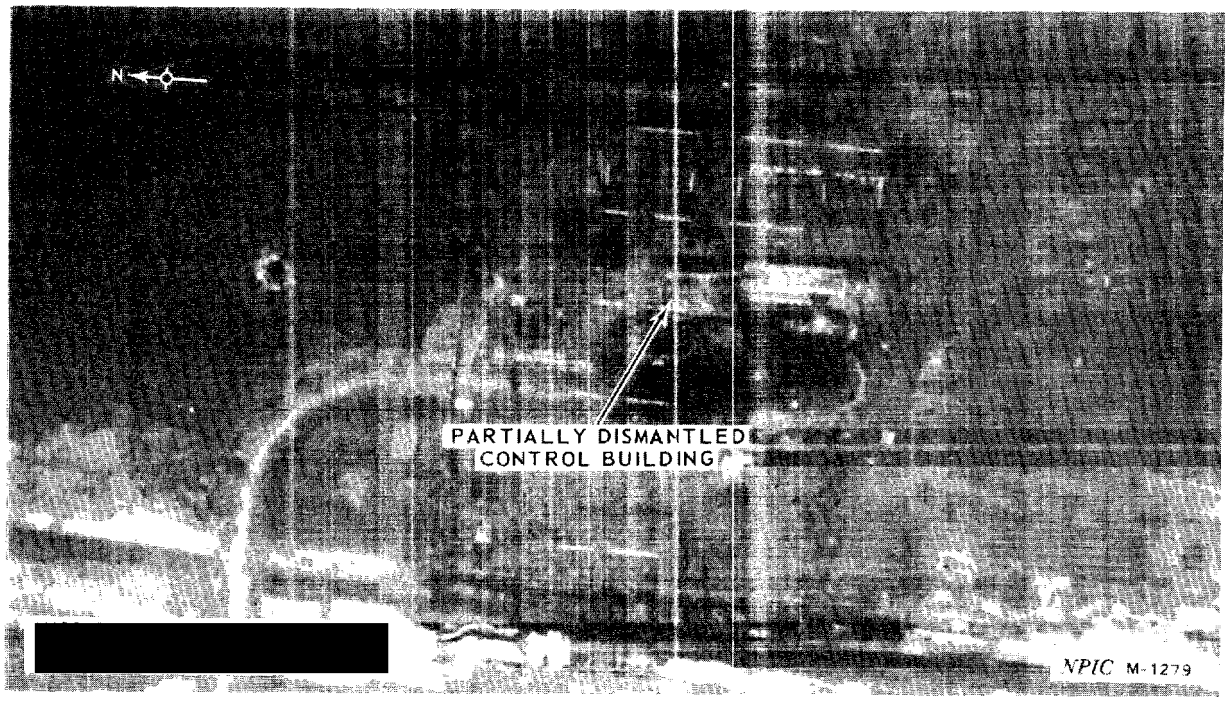
25X1D

FIGURE 4. HAI PHONG TRANSFORMER SUBSTATION, NORTH VIETNAM



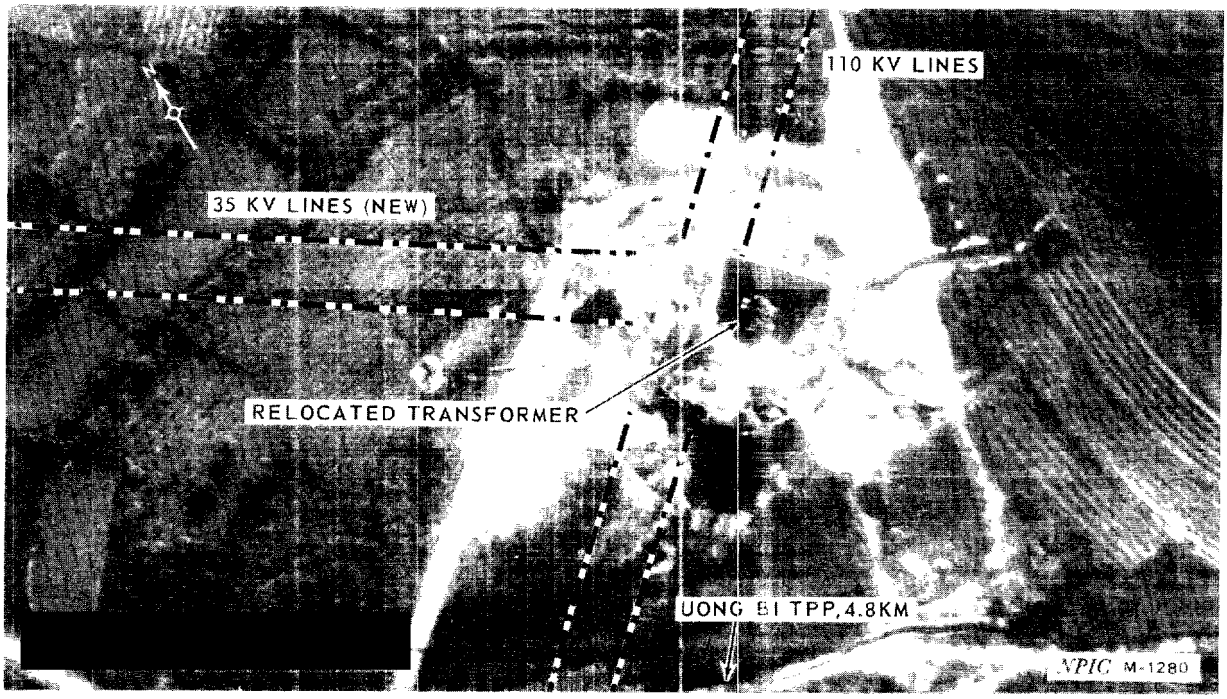
25X1D

FIGURE 5. CAM PHA TRANSFORMER SUBSTATION, MONG DUONG, NORTH VIETNAM



25X1D

FIGURE 6. NAM DINH TRANSFORMER SUBSTATION, MONG DONG, NORTH VIETNAM

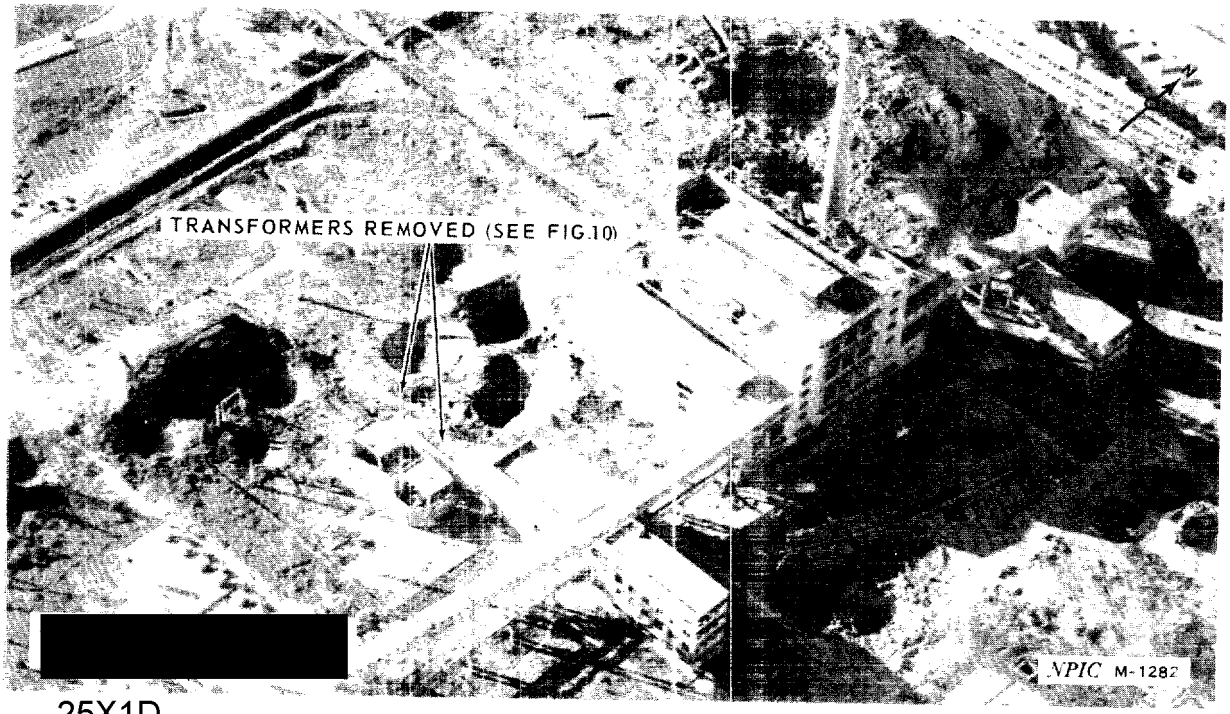


25X1D

FIGURE 7. RELOCATED TRANSFORMER, UONG BI AREA, NORTH VIETNAM

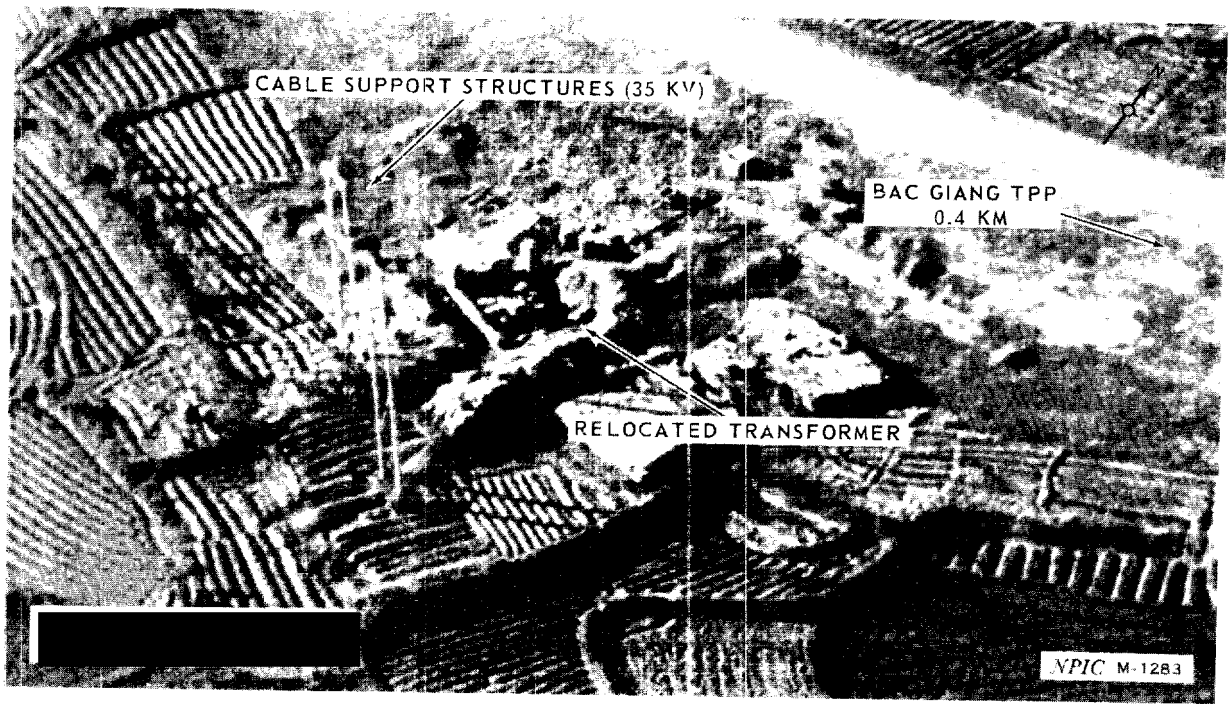
25X1D

FIGURE 8. UONG BI THERMAL ELECTRIC POWERPLANT, NORTH VIETNAM



25X1D

FIGURE 9. BAC GIANG THERMAL ELECTRIC POWER PLANT, NORTH VIETNAM



25X1D

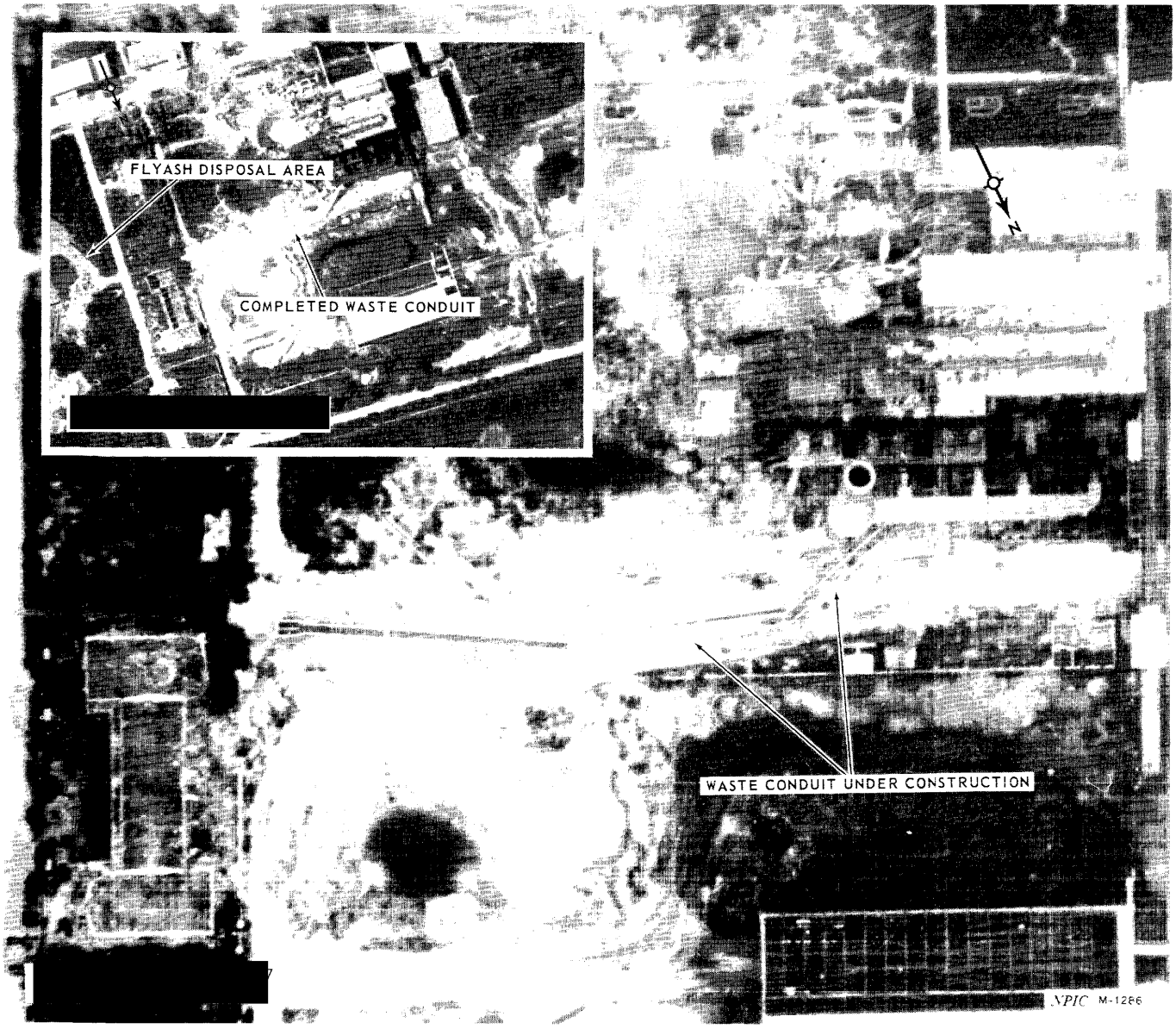
FIGURE 10. RELOCATED TRANSFORMER, BAC GIANG AREA, NORTH VIETNAM

25X1D

FIGURE 11. THAI NGUYEN THERMAL ELECTRIC POWERPLANT, NORTH VIETNAM

25X1D

FIGURE 12. THANH HOA THERMAL ELECTRIC POWERPLANT, NORTH VIETNAM



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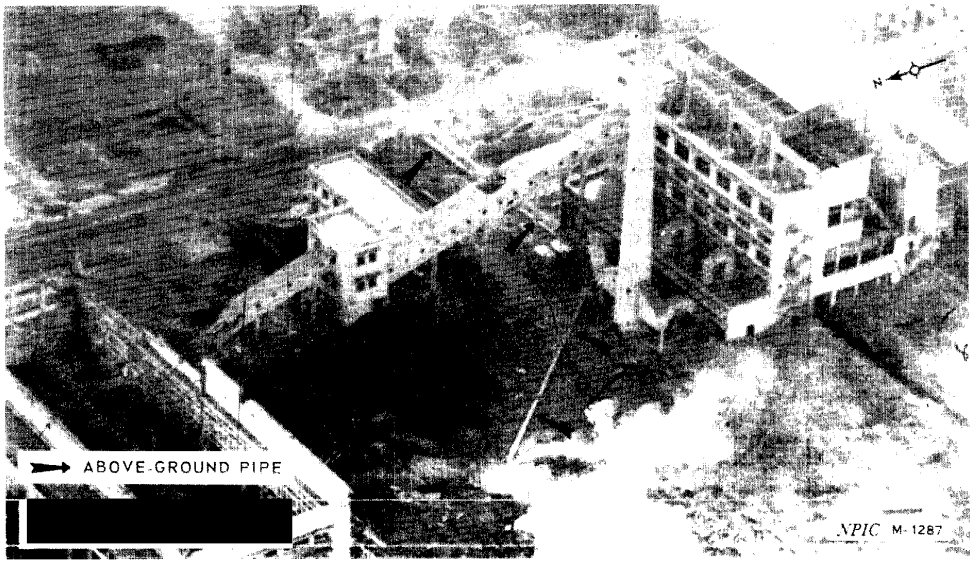
25X1D

FIGURE 13. VIET TRI THERMAL ELECTRIC POWERPLANT, NORTH VIETNAM

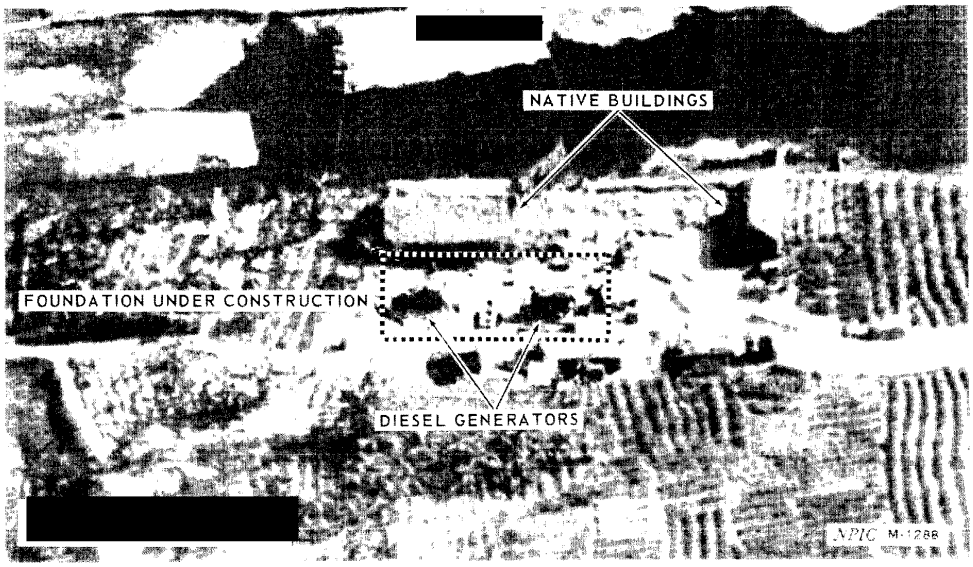
25X1C [redacted]



25X1D

FIGURE 14. BAC GIANG THERMAL ELECTRIC POWERPLANT, NORTH VIETNAM

25X1D



25X1D

FIGURE 15. HAI PHONG DIESEL-ELECTRIC POWERPLANT ALX 4 UNDER CONSTRUCTION (INITIAL STAGE), NORTH VIETNAM

25X1D

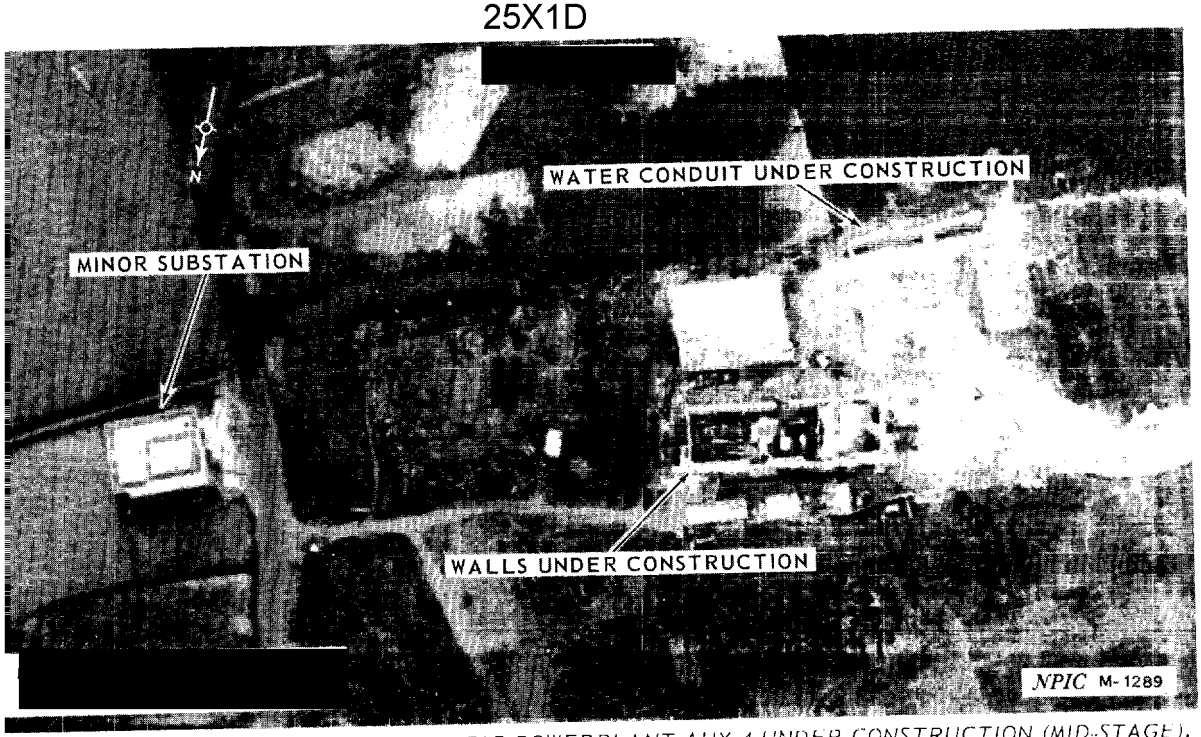


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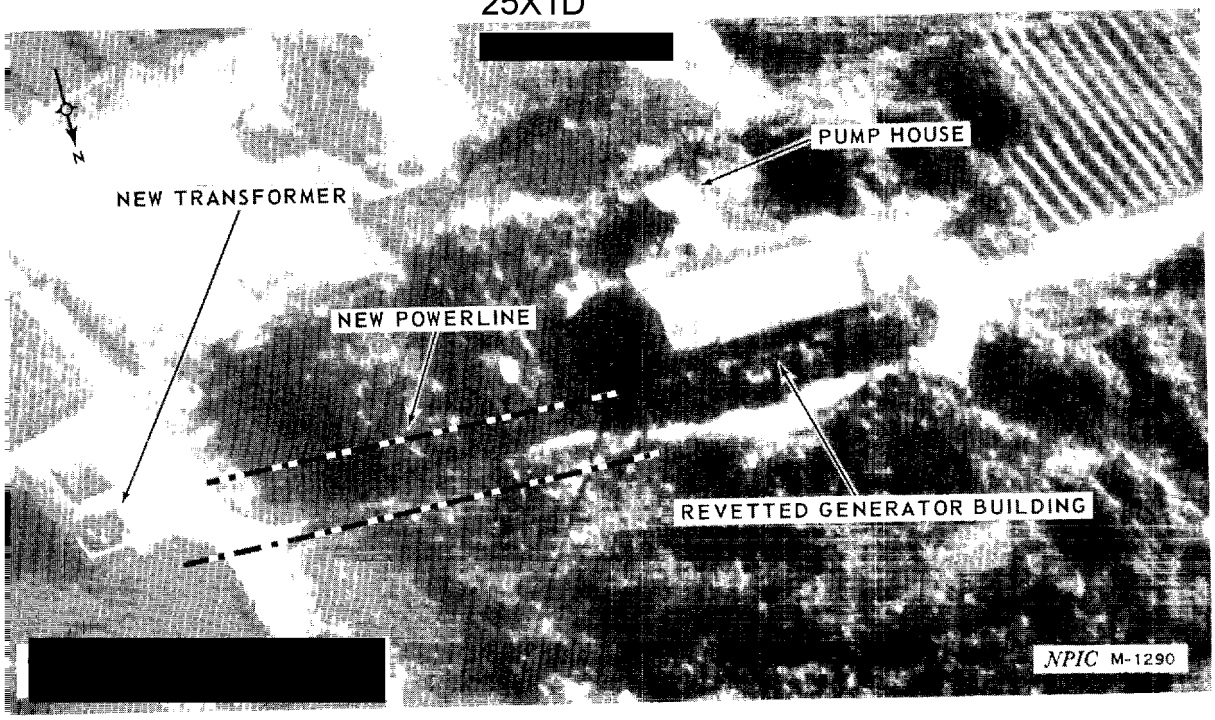
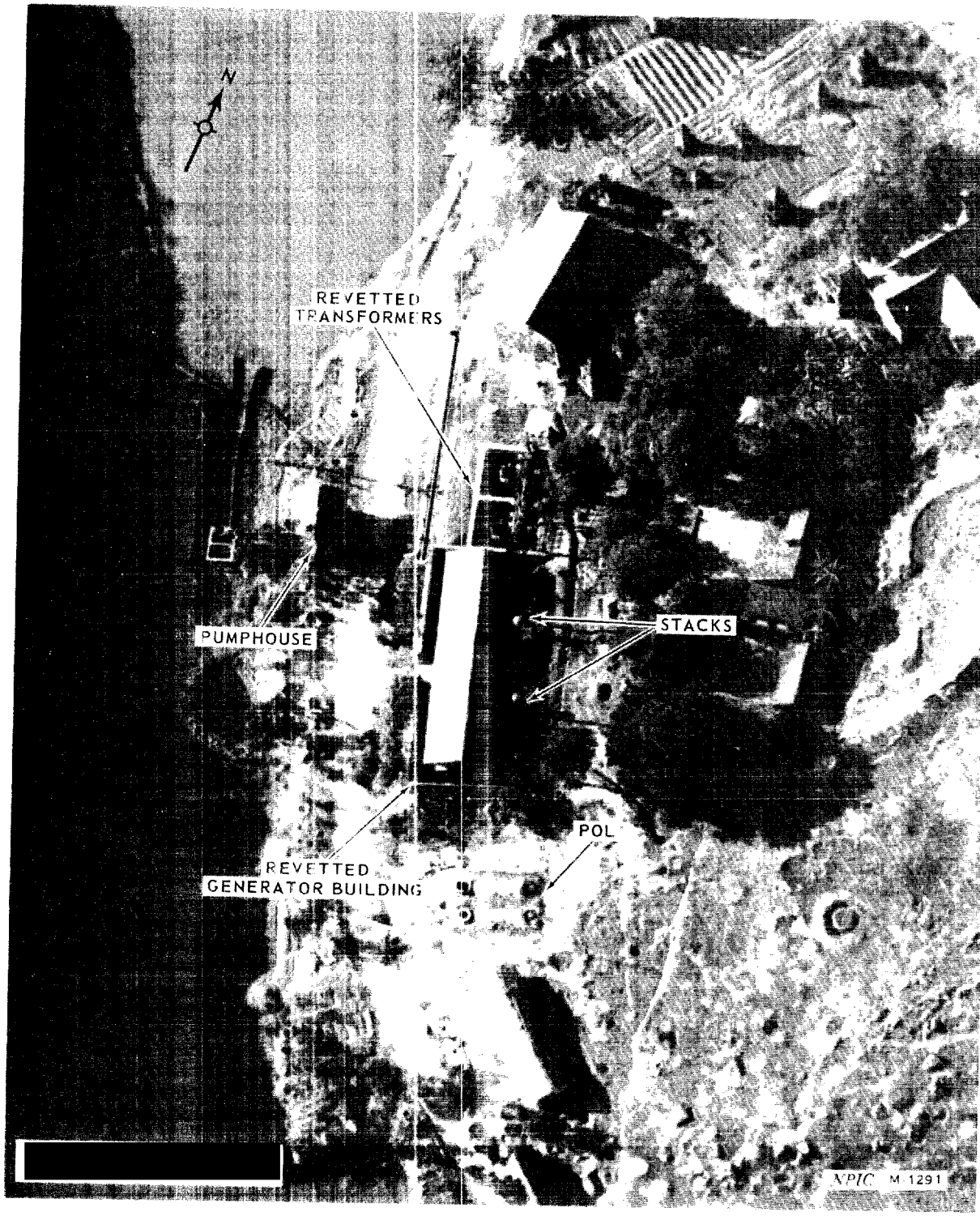
FIGURE 16. HAI PHONG DIESEL ELECTRIC POWERPLANT AUX 4 UNDER CONSTRUCTION (MID-STAGE), NORTH VIETNAM

25X1D



25X1D FIGURE 17. HAI PHONG DIESEL-ELECTRIC POWERPLANT AUX 4, NORTH VIETNAM



25X1D

FIGURE 18. HA HOI DIESEL POWER PLANT, PIEU LONG, NORTH VIETNAM

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